

CLAIMS

I claim:

1. A vertical support and rectilinear translation arrangement for selectively repositioning the die cylinders between an operative position and a stand-by position in a rotary die cutter having an anvil cylinder and a pair of die cylinders alternately operable with said anvil cylinder, said arrangement comprising:
 - a supporting base;
 - one of said anvil cylinder and said pair of die cylinders supported at axial opposite cylinder ends for horizontal linear movement on said supporting base relative to the other of said anvil cylinder and said pair of die cylinders; and,
 - the other of said anvil cylinder and said pair of die cylinders supported at axial opposite cylinder ends for vertical movement between an operative position and a stand-by position, wherein, in said operative position, said anvil cylinder and at least one die cylinder are vertically aligned and supported on said supporting base.
2. The apparatus as set forth in claim 1 wherein each die cylinder is supported for independent horizontal linear movement on the supporting base in its stand-by position;
 - said anvil cylinder is supported for vertical linear movement with the operative die cylinder between an upper operating position and a lower die cylinder exchange position; and,
 - both of said die cylinders are supported for unidirectional horizontal linear movement on the supporting base in the die cylinder exchange position.
3. The apparatus as set forth in claim 2 wherein said supporting base includes a pair of laterally spaced upstream base portions and a pair of laterally spaced downstream base portions, one of said pairs of base portions movable between a closed position adjacent the other pair of base portions in the operative position and an open position spaced from said other pair of base portions to define an opening therebetween in the cylinder exchange position, said apparatus further comprising:
 - anvil cylinder end supports rotatably supporting the anvil cylinder at opposite axial ends on a vertical translation mechanism;

10 said anvil cylinder end supports sized to move into said opening in the
base in response to downward movement on said translation mechanism to carry said
operative die cylinder therewith to the lower die cylinder exchange position; and,
15 die cylinder end supports rotatably supporting each die cylinder at
opposite axial ends on one of said base portion pairs in the stand-by and exchange
positions and on said anvil cylinder end supports in the operative and exchange
positions.

4. The apparatus as set forth in claim 3 wherein, in the operative position,
the vertical support arrangement comprises, in serial vertical order, the movable base
portions, one die cylinder in the stand-by position, the anvil cylinder, and another die
cylinder in the operative position.

5. The apparatus as set forth in claim 3 wherein said base portions
comprise:

a pair of fixed base portions having upper horizontal edges defining first
die cylinder tracks;

5 a pair of translatable base portions having upper horizontal edges defining
second die cylinder tracks and lower horizontal edges defining base portion carriages;
and,

a pair of base tracks supporting the base portion carriages for moving said
translatable base portions between the closed and open positions.

6. The apparatus as set forth in claim 5 wherein the end supports for each
die cylinder include:

lower horizontal edges defining die cylinder carriages for moving the die
cylinder on said first and second die cylinder tracks; and

upper horizontal edges for supporting the anvil cylinder end supports in
the operative position.

7. The apparatus as set forth in claim 2 wherein said supporting base
includes laterally spaced upstream base portions and laterally spaced downstream base
portions defining therebetween an opening in the supporting base, said apparatus
further comprising:

die cylinder end supports rotatably supporting each die cylinder at opposite axial ends on said base portions;

said die cylinder end supports sized and positioned to span the opening in the base in the stand-by position;

anvil cylinder end supports rotatably supporting the anvil cylinder at opposite axial ends on a vertical translation mechanism;

said anvil cylinder end supports sized to move into said opening in the base in response to downward movement on said translation mechanism to carry said operative die cylinder therewith to the lower die cylinder exchange position.

8. The apparatus as set forth in claim 7 wherein, in the operative position, the vertical support arrangement comprises, in serial vertical order, the upstream and downstream base positions, one die cylinder in the stand-by position, the anvil cylinder, and another die cylinder in the operative position.

9. The apparatus as set forth in claim 1 wherein said anvil cylinder is mounted for horizontal linear movement on said supporting base.

10. The apparatus as set forth in claim 9 wherein each of said die cylinders is alternately moveable vertically between the operative and stand-by positions in response to horizontal reciprocal movement of said anvil cylinder.

11. The apparatus as set forth in claim 10 wherein the anvil cylinder and the die cylinder in operative position are vertically aligned.

12. The apparatus as set forth in claim 11 comprising:

an outfeed conveyor and an infeed conveyor mounted on the supporting base downstream and upstream respectively of said anvil cylinder;

5 said infeed conveyor adapted to move horizontally with said anvil cylinder between an active downstream sheet infeed position and an inactive upstream position.

13. The apparatus as set forth in claim 12 wherein said outfeed conveyor is adapted to move horizontally with said anvil cylinder to provide an active sheet outfeed position in both the downstream and upstream positions of said anvil cylinder.

14. The apparatus as set forth in claim 11 wherein the die cylinders are horizontally spaced from each other to provide an upstream die cylinder and a downstream die cylinder and each die cylinder is mounted for reciprocal vertical movement between a stand-by position below the anvil cylinder and an operative position above the anvil cylinder.

15. The apparatus as set forth in claim 14 including an infeed conveyor mounted above said upstream die cylinder for vertical movement therewith between an active position with the upstream die cylinder in the stand-by position and an inactive position with the upstream die cylinder in the operative position.

16. The apparatus as set forth in claim 14 including an outfeed conveyor mounted above said downstream die cylinder for vertical movement therewith between an active position with the downstream die cylinder in the stand-by position and an inactive position with said downstream die cylinder in the operative position.